Weller® Tech Sheet

MODEL EC1302B ELECROSTATIC DISSIPATIVE 20 WATT SOLDERING TOOL

PRODUCT DESCRIPTION

The Weller EC1302B series tools feature stainless steel heater construction, a non-burning silicone rubber cord and a large selection of iron plated copper tips in various styles. The handle design is lightweight, high impact plastic, with controlled thermal conductivity to allow continuous use without discomfort from heat or fatigue. The heating element is a fast response, long life, nichrome wound unit encased in stainless steel to eliminate corrosion at high temperature.

The Weller EC1302B tools are interchangeable without recalibration of the soldering station. This is made possible by the use of a high precision platinum temperature sensor; which is positioned deep inside the tip to insure rapid response to soldering load variations.

The Weller EC1302B tool has been specifically designed for use at electrostatic free workstations and is completely free from stored static charges. The blue plastic used in this product meets the requirements for ELECTROSTATIC PROTECTIVE MATERIALS as required in Mil-B-18705. The blue plastic material passes STATIC DECAY tests per Federal Test Method Std. No. 103C, method 4046, and SUFACE RESISTIVITY test per ASTM D257. All Weller ESD tools comply with DOD-HDBK-263.

The Weller EC1302B tool is designed to be used with the DEC1000, EC1000, EC2000, HYC3000, MC5000 and WTL1000 series power units. The station and tool combination meets DOD-STD-2000, Mil-S-2000, Mil-S-45743, W-S-6536 and W-S-570, as well as DOD-STD-1686.

SPECIFICATIONS

1. Wattage: 20 watts at 24VAC.
2. Tip voltage to ground: Less than 2mv RMS to line cord ground pin when used with Weller power units.
3. Tool weight: 0.7 ounces without cord.
4. Tool material: The thermoplastic handle and cord jacket are Electrostatic Dissipative (ESD). Metal parts are stainless steel for corrosion resistance.
5. Heater type: Fiberglass and ceramic insulated nichrome element. Reverse wound for low leakage and magnetic field cancellation.
6. Tip type: Weller EPH series tips. Copper with heavy iron, nickel and chromium plating for long life. See tip chart.
7. Sensor type: Platinum RTD probe. Fits deep inside tip for rapid response. Precision calibrated for interchangeability.
8. Handle design: Small diameter pencil shape with foam rubber sleeve for low grip temperature and maximum comfort.
9. Tool cord: Black ESD Silicone rubber, burn resistant.
10. Connector: Polarized, 5 pin locking.
11. Recovery time: 10 seconds from 100°F drop with EPH101 tip at 700°F.

EC1302B SERIES SOLDERING TOOL TROUBLESHOOTING GUIDE

CAUTION: Disconnect from power supply before attempting repairs.

NOTE: If ground pin has been removed from power unit line cord, tip temperature control may be erratic.

1. Tool does not heat. Possible problems: High resistance or open heater and/or cord.
   - 1.1 Check heater resistance from pin 1 to pin 2 of tool connector. Correct heater resistance is 29 - 32 ohms at ambient temperature.
     - 1.1.1 If incorrect, unscrew heater assembly from handle.
     - 1.1.2 Disconnect heater leads from white and yellow cord leads. With cord detached, check heater resistance between pins (29 - 32 ohms is correct). Cord resistance for opens between pins at connector and pins in handle. (Resistance between pin 1 and pin connected to yellow lead, and between pin 2 and pin connected to white lead should measure 0 - 0.5 ohms maximum; between pin 1 and pin 2 must measure infinity).
     - 1.1.3 Replace heater assembly and/or cord if resistance is incorrect.
   - 1.2 Check sensor resistance from pin 3 to pin 4 of tool connector. Correct sensor resistance is 21 - 24 ohms.
     - 1.2.1 If incorrect, unscrew heater assembly from handle.
     - 1.2.2 Disconnect sensor leads from red and black cord leads. With cord detached, check sensor resistance between pins (21 - 24 ohms is correct) and cord resistance for opens between pins at connector and pins in handle (resistance between pin 3 and pin connected to black lead and between pin 2 and pin connected to red lead should measure 0 - 0.5 ohms maximum; pin 3 and pin 4 must measure 3.8 - 3.9K).
     - 1.2.3 Replace sensor and/or cord if resistance is incorrect.
2. Tool overheats. (Note: Tool will overheat with tip removed). Possible problems: low resistance or shorted sensor and/or cord.
   - 2.1 Check sensor resistance from pin 3 to pin 4 of tool connector. Correct sensor resistance is 21 - 24 ohms at ambient temperature.
   - 2.2 If incorrect, unscrew heater assembly from handle.
   - 2.3 Disconnect sensor leads from red and black cord leads. With cord detached, check sensor resistance between pins (21 - 24 ohms is correct) and cord resistance for shorts between pins pin 3 - pin 4 at connector must measure 3/8 - 3.9K).
   - 2.4 Replace sensor and/or cord if resistance is incorrect.
3. High voltage on tip. Possible problems: open heater and/or cord ground lead or short between heater and ground lead.
   - 3.1 Check ground circuit resistance from tip to pin 5 on connector. Correct resistance is less then 1 ohm.
     - 3.1.1 If greater than 1 ohm, unscrew heater assembly from handle.
     - 3.1.2 Disconnect green heater ground lead from green cord lead. With cord detached, check ground resistance between pin and tip (0 - 0.5 ohms is correct) and cord resistance for open between pin green in handle and pin 5 at connector (0 - 0.5 ohms is correct).
     - 3.1.3 Replace heater assembly and/or cord if resistance is incorrect.
   - 3.2 Check heater to ground resistance between pin 5 and pin 1 or pin 2. Correct resistance is infinity.
     - 3.2.1 If incorrect, unscrew heater assembly from handle.
     - 3.2.2 Disconnect green heater ground lead from green cord lead. With cord detached, check ground resistance between a heater pin and ground (green) pin. A measurement of infinity ohms is correct. Check resistance between pin 5 and pin 1 or pin 2. A measurement of infinity ohms is correct.
   - 3.3 Replace heater assembly and/or cord if resistance is incorrect.

WARNINGS

1. **Keep your work area in proper order.**

   Always return the soldering tool to its original holder when not in use. Do not bring combustible materials near the hot soldering tools.

2. **Take care for the surroundings.**

   Don't use the soldering tool in a moist or wet environment.

3. **Protect yourself against electrical shocks.**

   Avoid touching grounded parts with your body, e.g. pipes, heating radiators, stoves or refrigerators.

4. **Keep children at a distance.**

   Don't allow other persons to touch or disturb the soldering tool or cord. Keep other persons away from your work area.

5. **Store your soldering tool in an appropriate place.**

   Unused soldering tools should be stored in a dry location which is out of the reach of children (some place high or in a locked cabinet). Switch off all unused soldering tools.

6. **Do not overload your soldering tool.**

   Use the soldering tool only with the specified voltage or specified pressure range.

7. **Use the appropriate soldering tool.**

   Don't use a soldering tool whose performance is not adequate for your work. Never use the soldering tool for purposes for which it was not designed.

8. **Wear suitable work clothes.**

   There is a danger of burning yourself with liquid solder. Wear the corresponding protective clothing in order to protect yourself against burns.

9. **Protect your eyes.**

   Wear protective eye wear. When working with bonding agents, it is particularly important to observe the warning notices of the bonding agent manufacturer. Protect yourself against spattering solder. There is a danger of burning yourself with liquid solder.

10. **Use a soldering vapor suction device.**

    If devices for solder vapor suction is available, ensure that these are connected and correctly used.

11. **Do not use the cord for purposes for which it is not designed.**

    Never carry the soldering tool by the cord. Don't use the cord to pull the power plug from the socket. Protect the cord from heat, oil and sharp edges.

12. **Protect the work piece.**

    Use clamping devices to hold the work in place. This is more secure than using your hands, and leaves both hands free to work with the soldering tool.

13. **Avoid abnormal posture.**

    Set-up your workplace with proper ergonomics. Avoid bad posture when working. Always use the suitable soldering tool.

14. **Take care of your soldering tool.**

    Keep the soldering tool clean for better and safer work. Follow the maintenance instructions and the notices concerning changing the soldering tips. Regularly inspect all connected cords and hoses. Repairs should only be carried out by a qualified technician. Use only original WELLER replacement parts.

15. **Remove the power plug from the socket before opening the unit.**

16. **Remove all maintenance tools.**

    Before switching on the unit, check that all maintenance tools have been removed from the unit.

17. **Avoid unexpected operation.**

    Make sure that the power switch is turned off when inserting the plug into the socket or connecting to power. Don't hold a soldering tool which is connected to a power supply while touching the power switch.

18. **Pay attention.**

    Be careful of what you do. Work with caution. Don't use the soldering tool if you are not concentrating on your work.

19. **Inspect the soldering tool for any damage.**

Before further use of the soldering tool, safety devices or slightly damaged parts must be carefully checked for error-free and intended operation. Inspect moving parts for error-free operation and that they don't bind, or whether any parts are damaged. All parts must be properly mounted and all requirements fulfilled for guaranteed error-free operation of the soldering tool. Damaged safety devices and parts must be repaired or replaced by a qualified technician, so long as nothing else is indicated in the Operation Manual.

20. **Attention.**

Use only accessories or attachments which are listed in the accessories list of the Operation Manual. Use only WELLER accessories or attachments on original WELLER equipment. Use of other tools and other accessories can lead to danger of injury.

21. **Repairs to your soldering tool should be carried out by a qualified technician.**

This soldering tool is in accordance with the relevant safety regulations. Repairs should only be carried out by a qualified electrician using original WELLER replacement parts. Failure to do so can lead to accidents for the operator.

22. **Do not work on electrically live parts.**

The grip of antistatic designed soldering tools is conductive.

23. **Applications with other WELLER equipment.**

If the soldering tool is to be used together with other WELLER equipment and attachments, also observe the warning notices given in the corresponding Operation Manual.

24. **OBSERVE THE VALID SAFETY REGULATIONS FOR YOUR WORKPLACE.**

Weller® EPH series tips are solid copper, plated with iron, nickel and chromium. The nickel and chromium protect the shank from corrosion and solder creep. The tips are pre-tinned in the working area with solder. Use only Weller soldering tips. Use of non-Weller components may void product warranty if the non-Weller component causes damage to the unit.

TIP SELECTION CHART

NUMBER	DESCRIPTION	TIP	REACH	CATEGORY
EPH101	Micropoint	1/64	7/16	A
EPH102	Bent conical	1/32	7/16	A
EPH103	Single flat	1/32	5/16	A
EPH104	Bent conical	3/64	7/16	A
EPH105	Single flat	3/64	5/16	B
EPH106	Screwdriver	1/16	7/16	B
EPH107	Chisel	5/64	7/16	A
EPH108	Chisel	7/64	7/16	A
EPH109	Conical	1/32	7/16	A
EPH110	Conical	1/16	7/16	A
EPH111	Screwdriver	3/64	7/16	B

1. Keep tip tinned; wipe only before using.
2. Use rosin or activated rosin fluxes. Acid type fluxes will greatly reduce tip life.
3. Remove tip and clean with suitable cleaner for flux used. The frequency of cleaning will depend on the type of work and usage. Tips in constant use should be removed and cleaned at least once a week. Corrosion between tip and sensor can cause erratic temperature control.

   WARNING: If tip does not remove easily, do not force it. The sensor will be damaged. Try removing the tip while heated. If this does not work, return tool to Weller for service. When installing new tips, they should slide freely over sensor probe.
4. Don't try to clean tip with abrasive materials other than the Weller WPB1 polishing bar and never file tip; to do so will greatly reduce tip life. Tip wettability is affected by contact with organics; such as plastic resins, silicone grease, and other chemicals. If the tip becomes unwettable, it may be cleaned hot with a soft steel or brass brush using solder flux as a solvent or with a Weller WPB1 polishing bar. Do not over do this or the iron plating will be removed and the tip ruined. Re-tin tip immediately to prevent oxidation.
5. Don't remove excess solder from heated tip before storing. The excess solder will prevent oxidation of the wettable surface when tip is reheated.
6. Do not use any compound or anti-seize material on Weller tips or sensor probe. They will cause wettability problems and may cause seizing after long heated periods.

WARNING: This product, when used for soldering and similar applications, produces chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

CUSTOMER SERVICE

Should your EC1302B tool require repair, it may be sent to the following address:

Cooper Tools
Weller Operations
815 State Road
Cheraw, SC 29520
ATTN: Repair Department

REPLACEMENT PARTS FOR EC1302B

KEY NO.	PART NO.	DESCRIPTION
1	EC231B	Barrel nut assembly
2	EC259B	Heater assembly
3	EC260B	Sensor assembly
4	EC256B	Handle/Cord
Not Shown	TC205	Sponge
Not Shown	IHF225EC	Spring and funnel
Not Shown	PH1301ESD	Tool stand
Not Shown	WPB1	Polishing bar for tips